

Salt Management Strategy (SaMS)

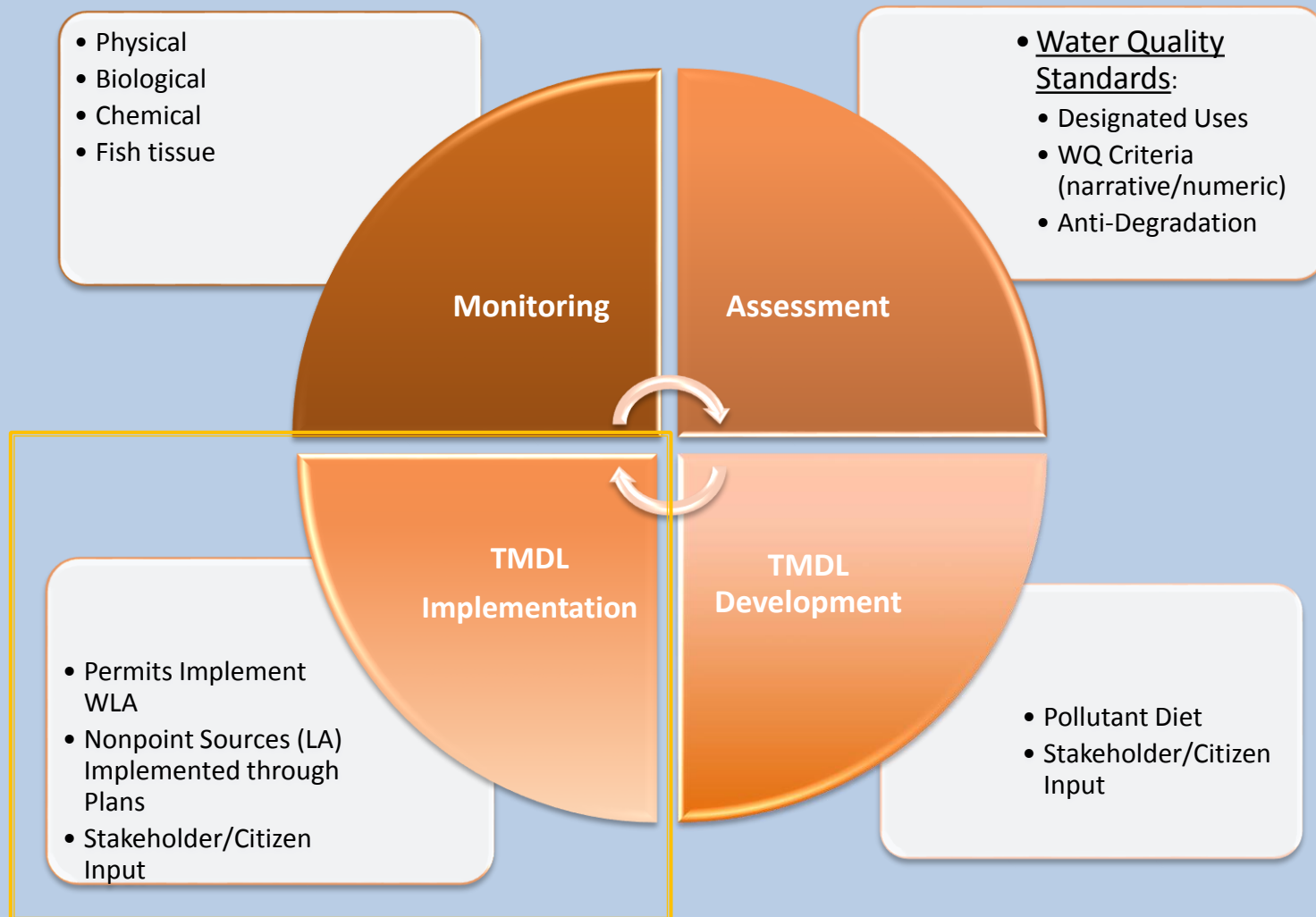
Fairfax County Environmental Quality
Advisory Council
December 13, 2017

Presentation Overview

- Water Quality Planning
 - Overview of Process
 - TMDL: What is it?
- Accotink Creek Watershed
 - Project History
 - Overview of Chloride TMDL
- Salt Management Strategy (SaMS)



Water Quality Planning Process



Total Maximum Daily Load

- A TMDL is the total amount of a pollutant a waterbody can receive and still not exceed water quality standards
- $TMDL = WLA + LA + MOS$
 - WLA = Wasteload Allocation
 - LA = Load Allocation
 - MOS = Margin of Safety
- Required by federal and state law
- The TMDL Process: 2 phases when cause to Aquatic Life Use Impairment is identified as Benthic Macroinvertebrates
 - Phase I: Conduct a Stressor Analysis
 - Phase II: Develop TMDL

Project History: Accotink Creek Watershed

- Aquatic Life Use Impairment
 - 1st identified in 1996
 - 2 more segments added in 2008
 - Based upon monitoring of benthic macroinvertebrates
- 1999: Consent Decree
- 2010-2012: Flow TMDL
 - Remanded by District Court in 2013
- 2014: Began current TMDL effort

Benthic macroinvertebrates:
Bugs that live in the bottom of
streams



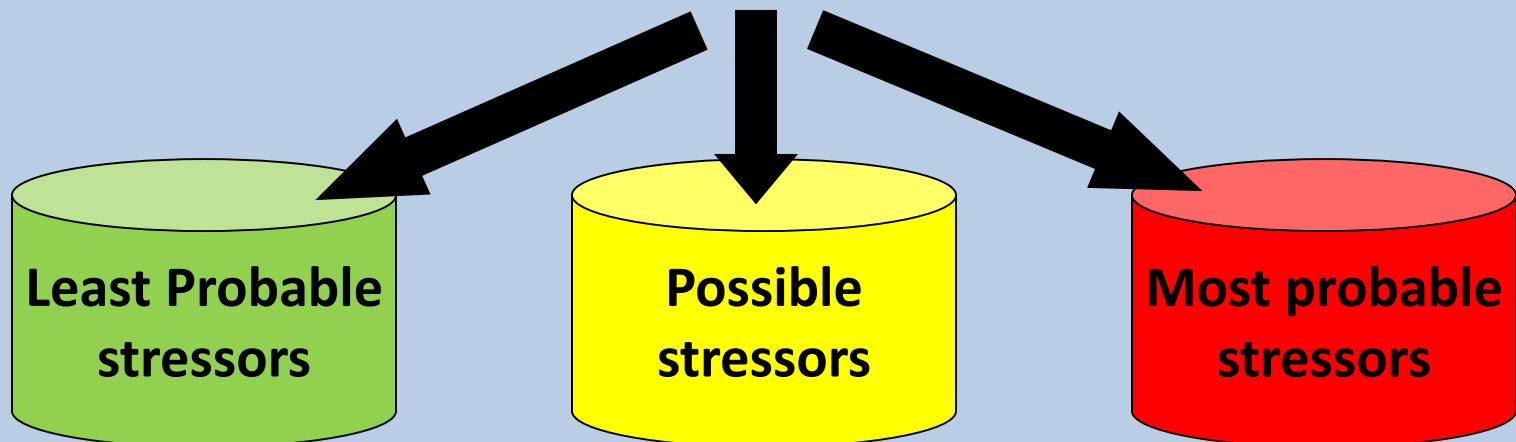
TMDL = Total Maximum Daily Load

Stressor Analysis

Answers the question:

What is causing the aquatic life impairment?

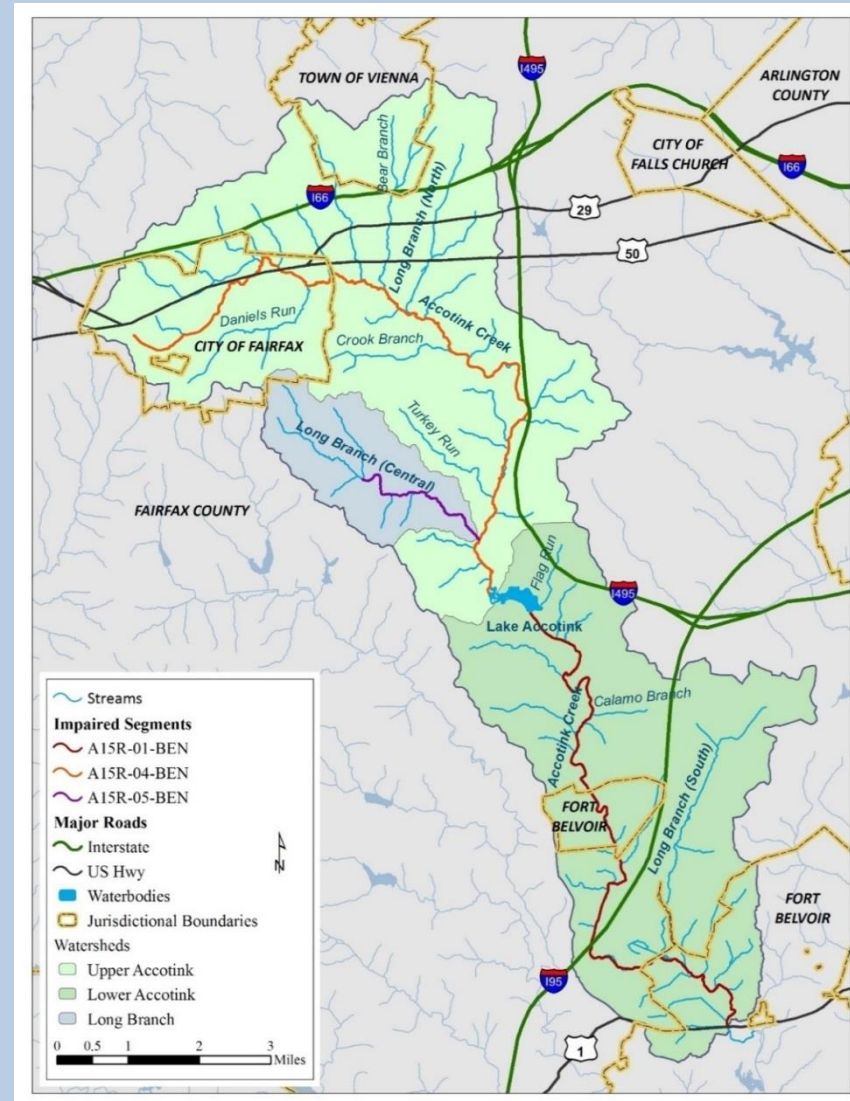
- List all potential causes, for example:
 - Dissolved oxygen, nutrients, pH, sediment, temperature, toxics, etc.
- Analyze the evidence for and against each potential cause:
 - Biological, habitat, water quality, historic data, etc.
- Categorize each of the causes as being one of the following:



TMDL Development

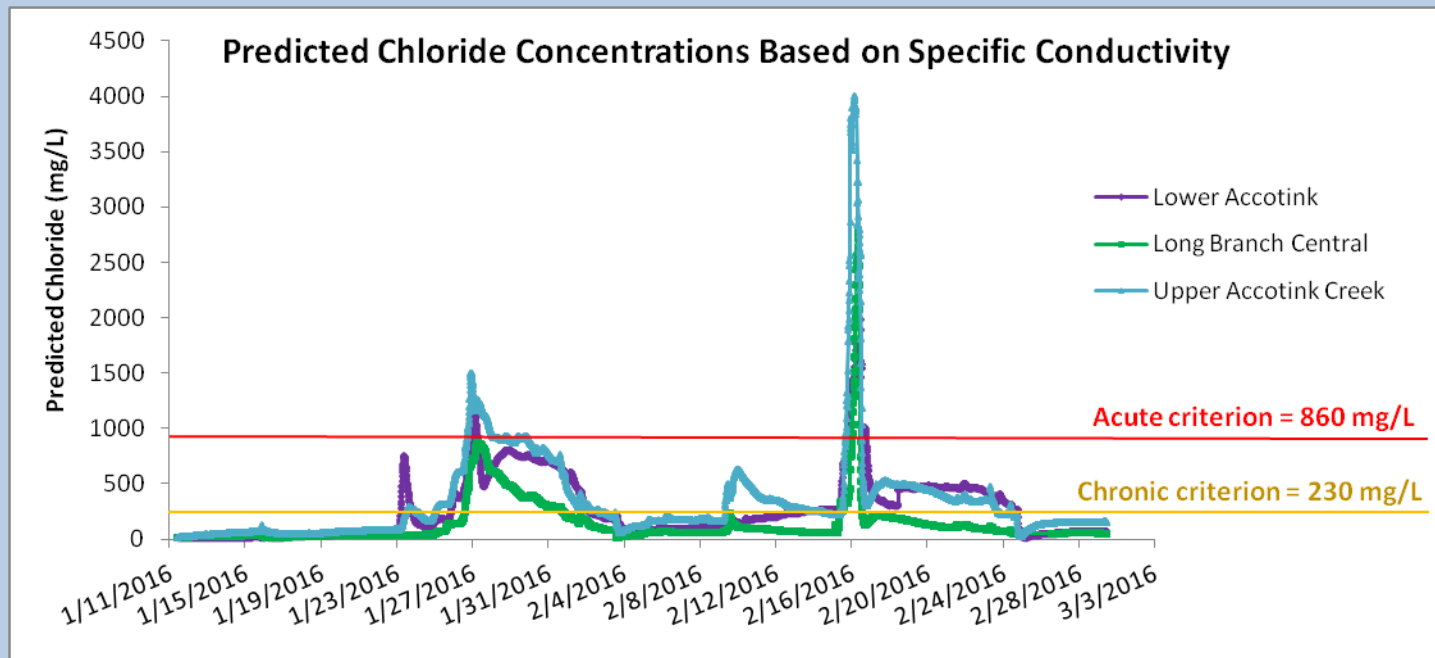
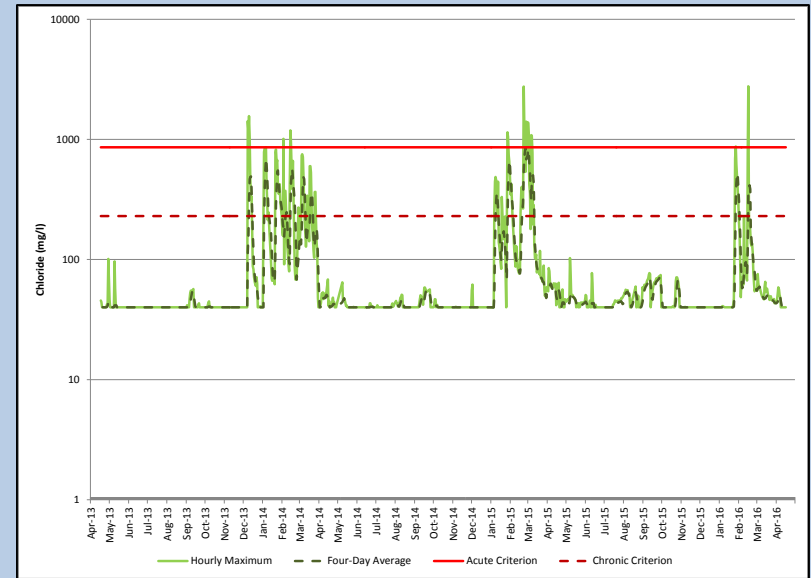
- Stressor Analysis
 - Data sources:
 - USGS
 - EPA
 - Fairfax County
 - DEQ
 - 4 Stressors identified:
 - Hydro-modification*
 - Habitat modification*
 - Sediment
 - **Chloride**
- TMDLs developed for sediment and chloride

*Non-pollutants

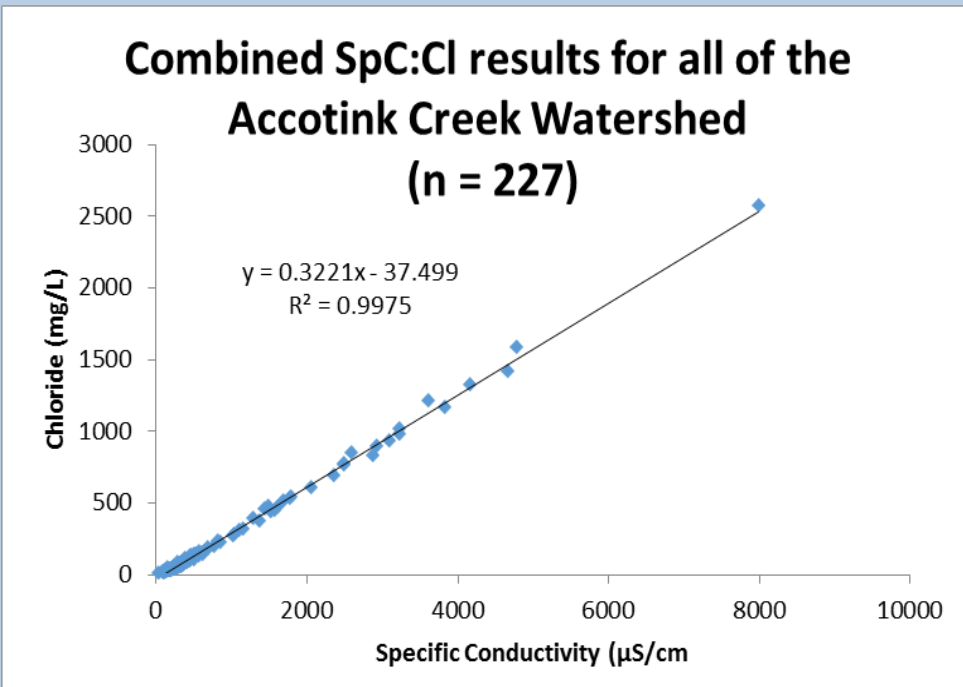


Chloride and Winter Storm Events

- WQ monitoring identified:
 - Elevated levels in winter months
 - Concentrations typically spike after winter precipitation events
- Chloride pollution is a winter stormwater issue



Specific Conductivity & Chloride



Strong relationship between chloride concentrations and specific conductivity.

Relationship not unique to Accotink

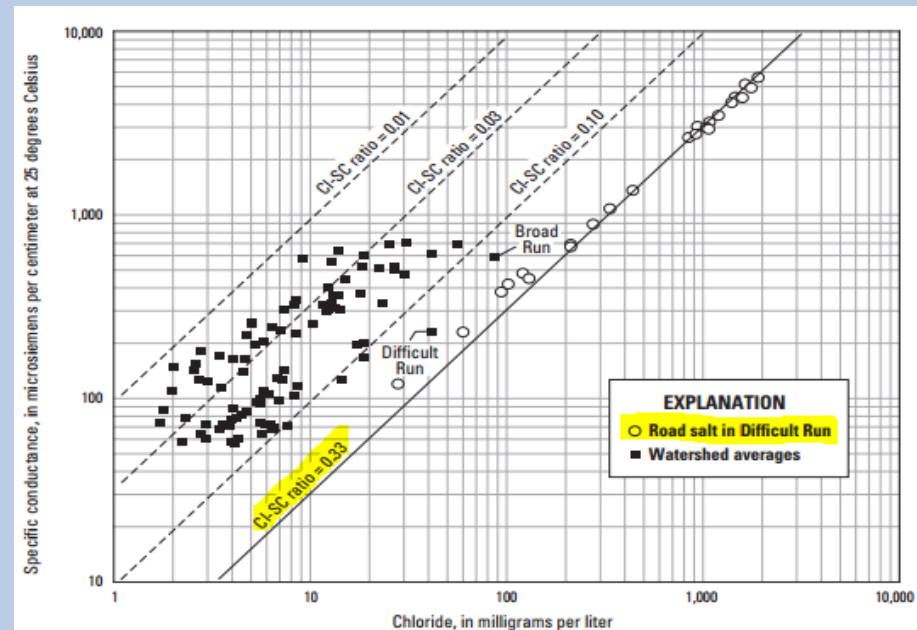


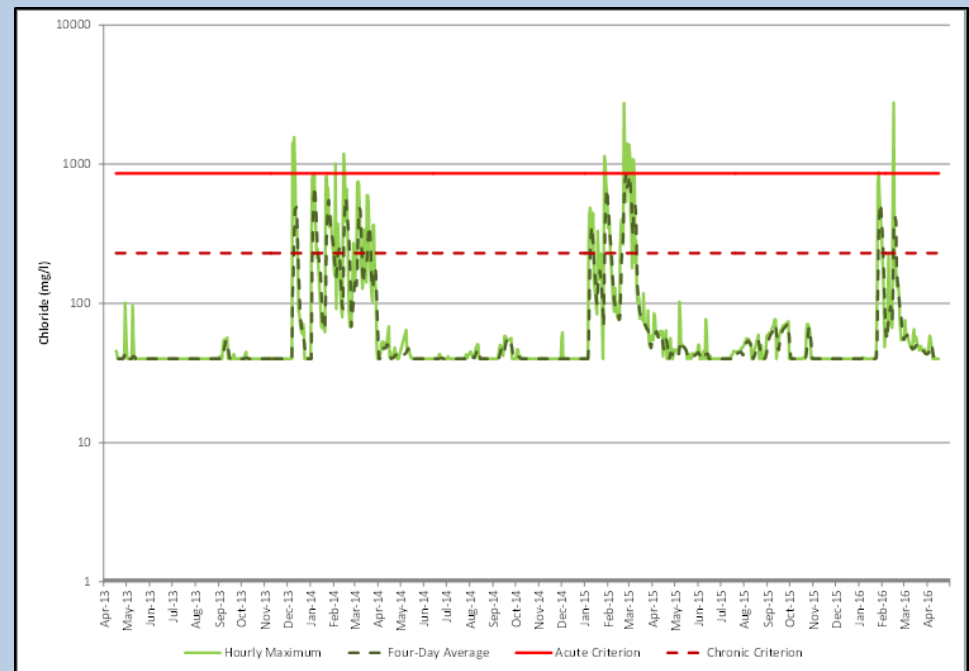
Figure 17. Relation between dissolved chloride and specific conductance in stream waters of Virginia. See tables 6 and 7 for data values.

Overview of the TMDL Approach for Chlorides

- Exceedances based on winter stormwater

- Load Duration Curve

- Aggregated WLAs
 - MS4s
 - Industrial Stormwater



- Non-numeric best management practice focus
- Final Reports awaiting approval

Salt, why it matters...

Too much salt is:

- Toxic to fish and bugs
- Corrosive to infrastructure
- Affects public health



But, salt application is crucial for public safety during winter storm events

- Is there a balance? YES!
 - There are variable ways to meet winter safety objectives with less salt use.

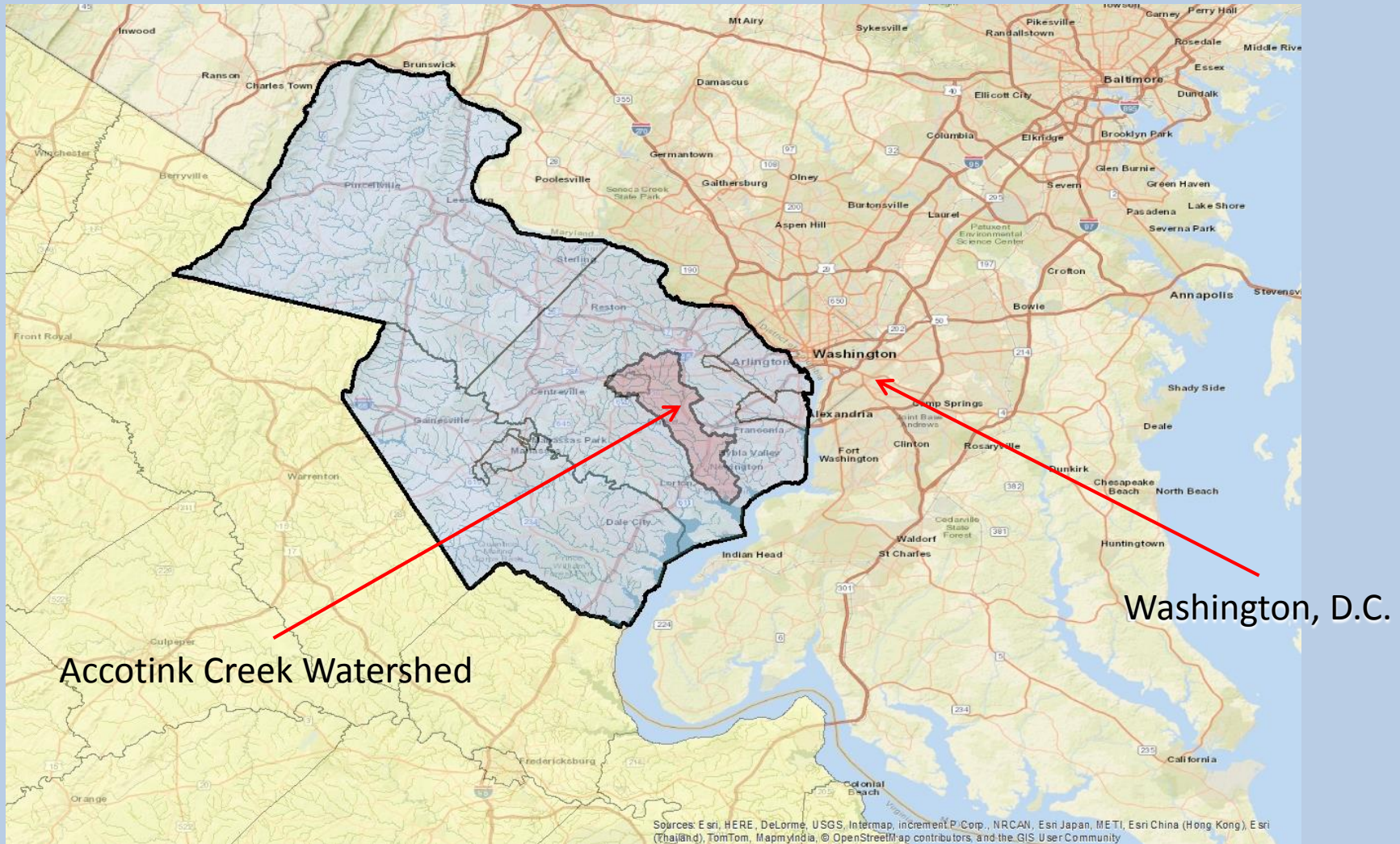


Salt Management Strategy (SaMS)

- Focus on improved best management practice (BMP) awareness and implementation
 - Complexities of winter storm management
 - Optimize public safety and WQ management concerns
- Strong stakeholder-driven focus
 - Field experts' input important for suitable BMPs
 - Sensitive to public safety concerns
 - Stakeholder buy-in important for success



Project Scope: Accotink Cr. Watershed and NoVA



- Accotink Creek watershed conditions not unique
- Best management practices not limited to watershed boundaries

What We Aim to Achieve

Goals

- ❖ Guide development of a strategy to address the Accotink Creek chloride TMDLs and proactively be applied in the NOVA region
- ❖ Foster collaboration to encourage long-term support for improved practices that protect public safety and lessen environmental, infrastructure and public health effects.

Objectives

- Develop a suite of salt-related BMPs
- Produce a guiding document that outlines all aspects of the issue (environmental, infrastructure, health and costs) and provides resources for addressing those issues
- Develop a comprehensive public education and outreach campaign
- Explore all possible funding opportunities to assist in implementation
- Develop options for effectiveness monitoring
- Organize options for reporting and tracking salt usage

Process Framework

2 Year Process

- 1st public meeting & comment period
- 3 Stakeholder Advisory Committee meetings
 - Comprised of all workgroup members
 - May include a Steering Committee
- Work Group meetings
 - Plan for 3 each, for 6 workgroups (see right)
- Final public meeting & comment period
 - Present the final document

Anticipated Work Groups

1. Traditional BMPs
2. Non-traditional Practices
3. Education & Outreach
4. Monitoring
5. Salt Tracking & Reporting
6. Government Coordination

For Reference: Potential BMP Options

- Traditional
 - Remove snow manually ASAP
 - Equipment Calibration
 - Integrate liquids
 - Reduce bounce and scatter of salt
 - Anti-ice before events
 - Use ground speed controllers
 - Upgrade to equipment
 - Develop a Winter Maintenance Plan
 - Training
 - Better storage
 - Tailor product usage and application rates based on pavement temperatures and conditions
 - Refine application rate charts and continually test lower rates
- Non-traditional
 - Lower levels of service
 - Alternative pavement types and urban designs
 - Driver behavior changes (i.e., teleworking)
 - Non-chloride deicers
- Legislative
 - Winter weather speed limits
 - Ordinances/administrative code that addresses certification of winter maintenance applicators
 - Slip and fall liability protection for certified applicators
 - Required commercial applicator training
 - Salt tax to annual vehicle registrations

Intended Stakeholder Advisory Committee

- MS4 Permittees
 - Municipal: Fairfax City and County, Vienna, Arlington and Prince Wm Counties
 - Institutional: Ft. Belvoir, NVCC, FCPS, VDOT
- **Property Owners and Managers**
 - Commercial properties
 - Government properties
 - Public roads
 - Institutional properties
 - Homeowner associations
- **Winter Maintenance Services**
 - Applicators
 - Equipment/Supplies
 - Associations (i.e. SIMA)
- Environmental Groups
 - Local: Friend of Accotink Creek, Friends of Lake Accotink Park, Sierra Club chapters
 - Regional: Chesapeake Bay Foundation
- Public Health
 - Virginia Department of Health
 - **Fairfax Water**
 - **Loudoun Water**
 - **Washington Suburban Sanitary Commission (WSSC)**
- **Public Safety**
 - Police/Sheriff
 - EMT/Fire
- Commissions/Other Government
 - NVRC, ICPRB, Potomac River Watershed Roundtable
 - USGS
 - DGIF/DCR

***Purple – non-typical stakeholders**



Public Out Reach & Engagement

1) DEQ Website:

<http://www.deq.virginia.gov/sams.aspx>

The screenshot shows a web browser window with the URL <https://www.surveymonkey.com/r/M7MRKWN>. The page title is "Salt Management Strategy Survey" and it is provided by the Virginia Department of Environmental Quality. The survey content includes a welcome message and a request for contact information.

We appreciate your participation in this 11 question survey that will be used to help inform the development of a Salt Management Strategy (SaMS). The answers to these questions will be used to guide discussions in the initial meetings and to help identify interested stakeholders to invite to participate in a Stakeholder Advisory Committee for the project. As presented, the results of this survey will be summarized so that no responses are tied to any names or organizations.

OK

1. Please provide your contact information below.
NOTE: The results of this survey will be summarized when presented publicly. However, for planning purposes, your information is valuable. Nonetheless, if you prefer to remain anonymous, please just enter "anonymous" in one of the fields below.

0 of 11 answered

The screenshot shows the DEQ website with the following sections:

- Header:** Virginia.gov, Agencies | Governor, Search Virginia.Gov, Search DEQ, GO.
- Navigation:** My DEQ, Permits, Laws & Regulations, Programs, Locations, About Us, Connect With DEQ.
- Programs:** Water, Water Quality Information & TMDLs, TMDL, Salt Management Strategy Development.
- Left Sidebar:** TMDL Development, TMDL Implementation, Public Notices, PCB TMDLs, No Discharge Zone Designations, Salt Management Strategy Development, TMDL Glossary, Frequently Asked Questions, Regulation, Contacts.
- Main Content:** Salt Management Strategy Development. This page is dedicated to the development of the Salt Management Strategy (SaMS) in the Northern Virginia region. It includes a description of the SaMS and its goals, and a list of stakeholders involved in the process.
- Right Sidebar:** Background Resources (Accotink Creek Draft Chloride TMDL Report, SaMS Background and Development Process Summary, For Reference: Minnesota Pollution Control Agency's Twin Cities Metro Area Chloride Management Plan), Stakeholder Engagement (SaMS Stakeholder Perspective Survey to help gauge interest and tailor the focus of the SaMS, Check back here for meeting announcements).

2) Stakeholder Perspective Survey

3) Periodic Newsletter (proposed)

Next Steps

- Currently in-progress:
 - Spreading word of upcoming effort and 1st public meeting
 - 11 question survey and website link to more information
 - Draft environmental and economic impacts
- 1st Public Meeting – January 17, 2018 (6:30 – 8:00 pm)
Arlington County Central Library: 1015 N Quincy St, Arlington, VA
 - Overview environmental and economic impacts
 - Summary of survey results
 - Solicit Stakeholder Advisory Committee membership
- 1st Stakeholder Advisory Committee meeting – February 27th 2018
 - Identify leadership and brainstorm mission, goals, and objectives
 - Present suggested workgroups and request volunteers
- 2nd Stakeholder Advisory Committee meeting – March/April 2018
 - Develop workgroups and have first break-out session

Questions?

Project Team

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